

AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended) A modified molecule having the biological activity of staphylococcal enterotoxin B (SEB) and being substantially non-immunogenic or less immunogenic than any non-modified molecule having the same biological activity in an individual when used *in vivo*, wherein (i) the said loss of immunogenicity is achieved by removing one or more T-cell epitopes derived from the originally non-modified molecule and said T-cell epitopes are MHC class II ligands or peptide sequences which show the ability to stimulate or bind T-cells via presentation on class II,

(ii) said modified molecule, when tested as a whole protein in a biological human T-cell proliferation assay, exhibits a stimulation index (SI) smaller than the parental non-modified molecule and smaller than 2.0, and

(iii) said T-cell epitopes to be removed are located on one or more strings termed R1 to R3 of contiguous residues of the originally non-modified SEB molecule, the strings are selected from:

R1: KFTGLMENMKVLYDDNHVSAI (SEQ ID NO: 2);

R2: QFLYFDLIYSIKDTKLGNYDNVRV (SEQ ID NO: 3);

R3: NKDLADKYKDKYVDVFGANYYYQCYFSKKTNDI (SEQ ID NO: 4).

Claims 2-16 (cancelled).

Claim 17 (new). An isolated polypeptide having the biological activity of native staphylococcal enterotoxin B and being less immunogenic to a human than native staphylococcal enterotoxin B, the polypeptide comprising the amino acid residue sequence of SEQ ID NO: 1 and including at least one amino acid residue substitution in at least one epitope region of SEQ ID NO: 1 selected from the group consisting of

(R1) amino acid residues 16-36 of SEQ ID NO: 1,

(R2) amino acid residues 43-66 of SEQ ID NO: 1, and

(R3) amino acid residues 70-102 of SEQ ID NO: 1.

Claim 18 (new). The isolated polypeptide of claim 17 wherein the at least one amino acid residue substitution in epitope region (R1) is selected from the group consisting of: Met21Ala, Met21Gly, Met21Pro, Met24Ala, Met24Gly, Met24Pro, Tyr28Thr, Tyr28Ala, Tyr28Asp, Tyr28Glu, Tyr28Gly, Tyr28His, Tyr28Lys, Tyr28Asn, Tyr28Asn, Tyr28Pro, Tyr28Gln, Tyr28Arg, and Tyr28Ser.

Claim 19 (new). The isolated polypeptide of claim 17 wherein the at least one amino acid residue substitution in epitope region (R2) is selected from the group consisting of: Il353Ala and Leu58His.

Claim 20 (new). The isolated polypeptide of claim 17 wherein the at least one amino acid residue substitution in epitope region (R3) is selected from the group consisting of: Tyr81Thr, Tyr81Ala, Tyr81Asp, Tyr81Glu, Tyr81Gly, Tyr81His, Tyr81Lys, Tyr81Asn, Tyr81Asn, Tyr81Pro, Tyr81Gln, Tyr81Arg, Tyr81Ser, Val82His, Val84Ala, Val84Pro, Val84Gly, Phe85Thr, and Phe85His.

Claim 21 (new). An isolated polypeptide having the biological activity of native staphylococcal enterotoxin B and being less immunogenic to a human than native staphylococcal enterotoxin B, the polypeptide comprising the amino acid residue sequence of SEQ ID NO: 1 and including at least one amino acid residue substitution in at least one epitope region of SEQ ID NO: 1 selected from the group consisting of:
(R1a) amino acid residues 16-30 of SEQ ID NO: 1,
(R1b) amino acid residues 19-33 of SEQ ID NO: 1,
(R1c) amino acid residues 22-36 of SEQ ID NO: 1,
(R2a) amino acid residues 52-66 of SEQ ID NO: 1, and
(R3a) amino acid residues 79-93 of SEQ ID NO: 1.

Claim 22 (new). The isolated polypeptide of claim 21 wherein the at least one amino acid residue substitution in epitope region (R1a) is selected from the group consisting of: Met21Ala, Met21Gly, Met21Pro, Met24Ala, Met24Gly, Met24Pro, Tyr28Thr, Tyr28Ala, Tyr28Asp,

Tyr28Glu, Tyr28Gly, Tyr28His, Tyr28Lys, Tyr28Asn, Tyr28Asn, Tyr28Pro, Tyr28Gln, Tyr28Arg, and Tyr28Ser.

Claim 23 (new). The isolated polypeptide of claim 21 wherein the at least one amino acid residue substitution in epitope region (R1b) is selected from the group consisting of: Met21Ala, Met21Gly, Met21Pro, Met24Ala, Met24Gly, Met24Pro, Tyr28Thr, Tyr28Ala, Tyr28Asp, Tyr28Glu, Tyr28Gly, Tyr28His, Tyr28Lys, Tyr28Asn, Tyr28Asn, Tyr28Pro, Tyr28Gln, Tyr28Arg, and Tyr28Ser.

Claim 24 (new). The isolated polypeptide of claim 21 wherein the at least one amino acid residue substitution in epitope region (R1c) is selected from the group consisting of: Met24Ala, Met24Gly, Met24Pro, Tyr28Thr, Tyr28Ala, Tyr28Asp, Tyr28Glu, Tyr28Gly, Tyr28His, Tyr28Lys, Tyr28Asn, Tyr28Asn, Tyr28Pro, Tyr28Gln, Tyr28Arg, and Tyr28Ser.

Claim 25 (new). The isolated polypeptide of claim 21 wherein the at least one amino acid residue substitution in epitope region (R2a) is selected from the group consisting of: Il353Ala and Leu58His.

Claim 25 (new). The isolated polypeptide of claim 21 wherein the at least one amino acid residue substitution in epitope region (R3a) is selected from the group consisting of: Tyr81Thr, Tyr81Ala, Tyr81Asp, Tyr81Glu, Tyr81Gly, Tyr81His, Tyr81Lys, Tyr81Asn, Tyr81Asn, Tyr81Pro, Tyr81Gln, Tyr81Arg, Tyr81Ser, Val82His, Val84Ala, Val84Pro, Val84Gly, Phe85Thr, and Phe85His.

Claim 26 (new). An isolated polypeptide comprising the amino acid residue sequence of SEQ ID NO: 1 and including at least one amino acid residue substitution in SEQ ID NO: 1 selected from the group consisting of: Met21Ala, Met21Gly, Met21Pro, Met24Ala, Met24Gly, Met24Pro, Tyr28Thr, Tyr28Ala, Tyr28Asp, Tyr28Glu, Tyr28Gly, Tyr28His, Tyr28Lys, Tyr28Asn, Tyr28Asn, Tyr28Pro, Tyr28Gln, Tyr28Arg, Tyr28Ser, Il353Ala, Leu58His, Tyr81Thr, Tyr81Ala, Tyr81Asp, Tyr81Glu, Tyr81Gly, Tyr81His, Tyr81Lys, Tyr81Asn, Tyr81Asn, Tyr81Pro,

Tyr81Gln, Tyr81Arg, Tyr81Ser, Val82His, Val84Ala, Val84Pro, Val84Gly, Phe85Thr, and Phe85His.

Claim 27 (new). An isolated nucleic acid that encodes a polypeptide of claim 17.

Claim 28 (new). An isolated nucleic acid that encodes a polypeptide of claim 21.

Claim 29 (new). An isolated nucleic acid that encodes a polypeptide of claim 26.

Claim 30 (new). A pharmaceutical composition comprising a polypeptide of claim 17 in a pharmaceutically acceptable carrier therefor.

Claim 31 (new). A pharmaceutical composition comprising a polypeptide of claim 21 in a pharmaceutically acceptable carrier therefor.

Claim 32 (new). A pharmaceutical composition comprising a polypeptide of claim 26 in a pharmaceutically acceptable carrier therefor.

Claim 33 (new). The isolated polypeptide of claim 17 wherein the polypeptide exhibits a stimulation index of less than 2 when tested in a biological human T-cell proliferation assay.

Claim 34 (new). The isolated polypeptide of claim 17 wherein the polypeptide exhibits a stimulation index of less than 1.8 when tested in a biological human T-cell proliferation assay.

Claim 35 (new). The isolated polypeptide of claim 29 wherein the polypeptide exhibits a stimulation index of less than 2 when tested in a biological human T-cell proliferation assay.

Claim 36 (new). The isolated polypeptide of claim 29 wherein the polypeptide exhibits a stimulation index of less than 1.8 when tested in a biological human T-cell proliferation assay.